UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,324	03/26/2001	Tomoaki Ikeda	1190-0490P	8566

			EXAMINER
2292	7590	05/21/2004	JOHNSON, TIMOTHY M

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ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	**Applicant(s)**
Office Action Summary	09/816,324	IKEDA ET AL.
	Examiner	**Art Unit**
	Timothy M Johnson	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _14 April 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _10-13_ is/are allowed.

6)☒ Claim(s) _1-4,9 and 14-21_ is/are rejected.

7)☒ Claim(s) _5-8_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 April 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _5 & 8_.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Drawings

1.　　The proposed drawing correction and/or the proposed substitute sheets of

drawings, filed April 14, 2004 have been approved.

Claim Rejections - 35 USC § 102

2.　　The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that
form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a
> foreign country or in public use or on sale in this country, more than one year
> prior to the date of application for patent in the United States.

3.　　Claim 21 is rejected under 35 U.S.C. § 102(b) as being anticipated by Normile,

6,028,965.

For claim 21, an image encoding method comprising receiving an image signal

and dividing the image signal into macroblocks to generate block-divided image signals

is provided by Normile in at least c. 3, lines 18-60. Encoding the block-divided image

signals and outputting encoded image signals to a transmission path is provided by

Normile in at least the second full paragraph in c. 4, the paragraph bridging cols. 3-4,

the paragraph bridging cols. 4-5, and the second full paragraph in c. 7. Limiting the

number of bits per pixel of the image signal to be encoded by the image encoding circuit

according to a bit rate of the transmission path is provided by Normile in at least c. 2,

lines 5-51, the second full paragraph in c. 4, the last full paragraph in c. 4, the second

full paragraph in c. 5, the paragraph bridging cols. 5-6, the fourth full paragraph in c. 6,

the last full paragraph in c. 6, the first full paragraph in c. 7, the second full paragraph in

c. 7, the paragraph bridging cols. 7-8, and the first two full paragraphs in c. 8, with

numerous explicitly recitations for reducing the amount of bits or bitrate, which is

selected in numerous ways where cited above by Normile, and since the amount of

image data is reduced by Normile, the number of bits per pixel, i.e. BPP, of the image is

limited

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between
> the subject matter sought to be patented and the prior art are such that the
> subject matter as a whole would have been obvious at the time the invention
> was made to a person having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by the manner in which
> the invention was made.

5.   Claims 1-2, 14-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Normile, 6,028,965, in view of in view of Okada, 5,729,295.

For claim 1, an image encoding device comprising an image signal input circuit

receiving an image signal and dividing the image signal into macroblocks to generate

block-divided image signals is provided by Normile in at least c. 3, lines 18-60. An

image encoding circuit encoding the block-divided image signals output from the image

signal input circuit, and outputting encoded image signals to a transmission path is

provided by Normile in at least the second full paragraph in c. 4, the paragraph bridging

cols. 3-4, the paragraph bridging cols. 4-5, and the second full paragraph in c. 7. An

encoded region designator designating regions to be encoded by the image encoding

circuit in accordance with a bitrate of the transmission path, wherein the image

encoding circuit encodes only those regions designated by the encoded region

designator may be provided by Normile in a broad sense, since Normile provides for

causing certain portions of the image to be coded or not coded or coded differently

based on the transmission bitrate in at least c. 2, lines 5-51, the second full paragraph in

c. 4, the last full paragraph in c. 4, the second full paragraph in c. 5, the paragraph

bridging cols. 5-6, the fourth full paragraph in c. 6, the last full paragraph in c. 6, the first

full paragraph in c. 7, the second full paragraph in c. 7, the paragraph bridging cols. 7-8,

and the first two full paragraphs in c. 8, so that region designation can be considered to

be provided. It would've been obvious to one having ordinary skill in the art at the time

the invention was made to consider regions being designated by Normile, since Normile

provides for selectively reducing part of the image, filtering some parts of the image,

truncating some parts of the transformed image, and sets some motion vectors to zero,

where motion vectors correspond to specific regional blocks of the image. In any case,

for further evidence of the conventionality of region selection, Okada explicitly provides

for region selection of an area for enhanced quality compression of some selected

regions of the image in at least c. 14, line 20 – c. 15, line 1. It would've been obvious to

one having ordinary skill in the art at the time the invention was made to use region

selection with Normile as taught by Okada, since Okada provides for at least the

advantages of preventing noise and increasing allocation of codes to a specified area

and motion area in c. 14, lines 20-28.

For claim 2, the image encoding device as set forth in claim 1, wherein said encoded region designator receives the bit rate of the transmission path is provided by Normile where cited above, and further by Okada in at least c. 14, lines 29-42, and a motion vector detected by said image encoding circuit is suggested by Normile where the motion vectors belong to specific block regions, and more so by Okada in at least c. 14, line 20 – c. 15, line 1, and designates the encoded regions based on them is provided by Normile and Okada where just cited.

For claim 14, see the rejection of at least claim 1.

For claim 15, see the rejection of at least claim 1. The image encoder as set forth in claim 14, wherein the encoded region designator receives the bitrate of the transmission path and at least one of a motion vector detected by the image encoding circuit, and region information, the encoded region designator designating the encoded regions based on the bitrate and at least one of the motion vector and region information is provided by Normile who clearly provides for encoding region blocks based on bitrate, and Okada provides for designating regions based on encoding rate using a specified region and motion vectors where cited above.

For claim 16, see the rejection of at least claim 15.

For claim 18, see the rejection of at least claim 1.

For claim 19, see the rejection of at least claim 15.

For claim 20, see the rejection of at least claim 15.

6.   Claims 1, 3, 14-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Normile, 6,028,965, in view of in view of Dunn et al., 6,356,664.

For claim 1, an image encoding device comprising an image signal input circuit

receiving an image signal and dividing the image signal into macroblocks to generate

block-divided image signals is provided by Normile in at least c. 3, lines 18-60. An

image encoding circuit encoding the block-divided image signals output from the image

signal input circuit, and outputting encoded image signals to a transmission path is

provided by Normile in at least the second full paragraph in c. 4, the paragraph bridging

cols. 3-4, the paragraph bridging cols. 4-5, and the second full paragraph in c. 7. An

encoded region designator designating regions to be encoded by the image encoding

circuit in accordance with a bitrate of the transmission path, wherein the image

encoding circuit encodes only those regions designated by the encoded region

designator may be provided by Normile in a broad sense, since Normile provides for

causing certain portions of the image to be coded or not coded or coded differently

based on the transmission bitrate in at least c. 2, lines 5-51, the second full paragraph in

c. 4, the last full paragraph in c. 4, the second full paragraph in c. 5, the paragraph

bridging cols. 5-6, the fourth full paragraph in c. 6, the last full paragraph in c. 6, the first

full paragraph in c. 7, the second full paragraph in c. 7, the paragraph bridging cols. 7-8,

and the first two full paragraphs in c. 8, so that region designation can be considered to

be provided. It would've been obvious to one having ordinary skill in the art at the time

the invention was made to consider regions being designated by Normile, since Normile

provides for selectively reducing part of the image, filtering some parts of the image,

truncating some parts of the transformed image, and sets some motion vectors to zero,

where motion vectors correspond to specific regional blocks of the image. In any case,

for further evidence of the conventionality of region selection, Dunn provides for region

selection of an area for enhanced quality by differently compressing in accordance with

the selection. It would've been obvious to one having ordinary skill in the art at the time

the invention was made to use region selection with Normile as taught by Dunn, since

Dunn provides for at least the advantages of both efficiency in that most of the

bandwidth is assigned to the important areas of the video, and thus simultaneously

providing for a substantial increase in compression.

For claim 3, the image encoding device as set forth in claim 1, wherein said

encoded region designator receives the bit rate of the transmission path is provided by

Normile where cited above, and in conjunction with region designation of Dunn, and

region information is provided by Dunn in at least the first full paragraph in c. 7, and

designates the encoded regions based on them is provided by Normile and Dunn where

just cited.

For claim 14, see the rejection of at least claim 1.

For claim 15, see the rejection of at least claim 1. The image encoder as set forth in claim 14, wherein the encoded region designator receives the bitrate of the transmission path and at least one of a motion vector detected by the image encoding circuit, and region information, the encoded region designator designating the encoded regions based on the bitrate and at least one of the motion vector and region information is provided by Normile who clearly provides for encoding region blocks based on bitrate, and Dunn provides for designating regions based on encoding rate for a specified region are where cited above and at least the abstract of Dunn, and Dunn also provides for the frame rate being dependent on motion as well in at least the last full paragraph in c. 4, where objects with different motion can be discerned, where objects with different motion at least inherently have different motion vectors.

For claim 16, see the rejection of at least claim 15.

For claim 18, see the rejection of at least claim 1.

For claim 19, see the rejection of at least claim 15.

For claim 20, see the rejection of at least claim 15.

7.   Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Normile, 6,028,965, in view of in view of Stanger et al., 6,097,435.

For claim 4, an image encoding device comprising an image signal input circuit receiving an image signal and dividing the image signal into macroblocks to generate block-divided image signals is provided by Normile in at least c. 3, lines 18-60. An

image encoding circuit encoding the block-divided image signals output from the image

signal input circuit, and outputting encoded image signals to a transmission path is

provided by Normile in at least the second full paragraph in c. 4, the paragraph bridging

cols. 3-4, the paragraph bridging cols. 4-5, and the second full paragraph in c. 7. A

selector limiting the number of bits of the image signal to be encoded by the image

encoding circuit according to a bit rate of the transmission path is provided by Normile in

at least c. 2, lines 5-51, the second full paragraph in c. 4, the last full paragraph in c. 4,

the second full paragraph in c. 5, the paragraph bridging cols. 5-6, the fourth full

paragraph in c. 6, the last full paragraph in c. 6, the first full paragraph in c. 7, the

second full paragraph in c. 7, the paragraph bridging cols. 7-8, and the first two full

paragraphs in c. 8, with numerous explicit recitations for reducing the amount of bits or

bitrate, which is selected in numerous ways where cited above by Normile. A bit

selector limiting the number of bits per pixel (i.e. BPP), in light of Applicant's

specification, is not explicitly provided by Normile, although the number of BPP is

certainly controlled by Normile of the image signal to be coded, since the reduction of

information to be coded taught by Normile removes bits from the image, which lowers

the BPP as a function of bitrate as claimed, so that "bit selection" is considered provided

by Normile. Bit selection can be considered provided by Normile, since if the BPP is

limited before coding, then bit selection is provided by the reduction of the image before

decoding, which reduces the BPP of the image. It would've been obvious to one having

ordinary skill in the art at the time the invention was made to understand that Normile

provides for bit selection, since given that Normile clearly provides for reducing the

amount of image data bits of the image, such image data bits cannot be reduced

without "selection". In any case, Stanger clearly provides for selectively selecting the

number of BPP as noted in at least the second full paragraph in c. 5. Normile can use

the bit selection feature of Stanger in addition to or as the circuits for reducing the data

to be coded, since Normile and Stanger are in the same field of image compression and

are both motion based transform coding, so that the references are identical in many

aspects and further including bitrate control. It would've been obvious to one having

ordinary skill in the art at the time the invention was made to use the bit selection of

Stanger, since limiting the number of bits per pixel is also based on bitrate control in at

least the abstract of Stanger, and which is advantageous, since Stanger provides for

variably doing so, and because the least significant bits, i.e. the least important bits are

limited so as to preserve quality of the image signal.

For claim 17, see the rejection of at least claim 4. The bit selector of Normile is

interposed between the image signal input and the coder, and similarly for Stanger,

where the bit selector is prior to the coder.

8.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Normile,

6,028,965, and Stanger et al., 6,097,435, as applied to claims 4 and 17 above, and

further in view of Christian et al., 5,668,352.

For claim 9, a selector receiving the block divided image signals and selecting

the number of most significant bits per pixel from the block divided image signals is

provided by Stanger in at least the second full paragraph in c. 5 and Normile where

cited above, where Normile teaches limiting the image BPP, wherein the number of

most significant bits per pixel varies according to the bitrate of the transmission path is

provided by both Stanger in at least the abstract and Normile where cited above. A bit

number determining circuit receiving the bitrate of the transmission path and

determining the number of most significant bits per pixel of the image signal according

to the bitrate of the transmission path is suggested by at least Stanger, since some

number of most significant bits is what Stanger provides as output. Stanger and

Normile clearly provide for obtaining a variable number of most significant bits based on

the bitrate, but are merely are silent for only explicitly determining a number of most

significant bits. Determining a number of most significant bits is conventional and well

known, and is provided by Christian in at least c. 8. lines 28-32, and also in c. 10, lines

32-44. Stanger and Normile can clearly use the counting of most significant bits as

taught by Christian and can be used with the obtaining of the most significant bits as

taught by Stanger and Normile to control the bitrate, and Stanger and Normile and

Christian are all in the same field of image compression. It would've been obvious to

one having ordinary skill in the art at the time the invention was made to count the

number of most significant bits, since this would assist the circuits of Stanger and

Normile for controlling which bits are retained and which are not.

Response to Amendment

9.   The objections to the drawings and the 35 USC 112, second paragraph,

rejections have been overcome by amendment. The title is now descriptive.

10.   Applicant's arguments filed April 14, 2004 have been fully considered but they

are not persuasive.

The Applicant argues on pages 20-23 of the amendment the following:

1. That the pre-filter of Normile does not provide for a selector that limits the

number of bits per pixel, i.e. BPP, of the image signal to be encoded.

2. That the pre-filter of Normile is not based on the bitrate of the transmission

path.

3. That Normile does not provide for an encoded region designator causing

certain portions of the image to be coded or not coded based on the transmission

bitrate, indicating that the reduction controller of Normile does not designate a region,

and if it does, that it is not dependent on the transmission bitrate, and that the pre-

filtering of Normile does not designate regions either.

4. That Okada and Dunn do not provide for selecting or designating regions to

be encoded according to the bitrate of the transmission path.

The Examiner respectfully disagrees:

1. The pre-filter undoubtedly reduces the BPP of the image, because Normile

explicitly reduces the amount of encoded data in at least the first full paragraph in c. 5

by using the pre-filter. Thus, for example, if the BPP was x coming into the pre-filter, y

(where y < x) would be the output of the filter.

2. The pre-filter, among other components of Normile, is clearly based on the bitrate as taught by Normile in at least the last full paragraph in c. 4 and the four full paragraphs in c. 5. That, is, the pre-filtering is a function of the bitrate.

3. Similar to the pre-filter of Normile, the reduction controller of Normile also varies which regions are selected for encoding based on the bitrate. In the case of the reduction controller, some data regions cannot possibly be coded, since the data is not available to the coder. The data reduced by the reduction controller is only regenerated after coding by interpolation, which recovers the missing data. Additionally, Normile also provides for pre-filtering specific regions based on the transmission rate in most of col. 5, where Normile explicitly recites areas of an image, i.e. regions, and specifically excludes noise in the region, and also reduces data in the regions by filtering, so that certain region data is also not coded.

4. Applicant admits Okada provides for selecting and designating regions to be encoded. Not only does Normile provide for encoding based on bitrate, but so does Okada. As noted in the rejection, Okada specifies areas for encoding for an encoding rate. Similarly, the invention of Dunn provides for selecting designating areas of the image that will be sampled at a different rate.

Final

11.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Allowable Subject Matter

12.   Claims 10-13 are allowed.

13.   Claim 5-8 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

14.   The following is an examiner's statement of reasons for allowance:

For claim 10, the prior art of record, Normile, 6,028,965, Okada, 5,729,295, Dunn

et al., 6,356,664, and Christian et al., 5,668,352, does not suggest, in combination with

the claim as a whole, receiving an image signal and dividing the image signal into

macroblocks, and encoding the block divided image signals, and outputting encoded

image signals to a transmission path, a first encoded region designator receiving a

bitrate of the transmission path and a motion vector detected by the image encoding

circuit, and designating a first encoded region based on the bitrate of the transmission

path and the motion vector, and a second encoded region designator receiving the

bitrate of the transmission path and region information, and designating a second

encoded region based on the bitrate of the transmission path and the region

information, wherein the image encoding circuit encodes only those regions designated

by both the first and second encoded region designators. Normile provides for, inter

alia, encoding only block regions based on bitrate, where the BPP are reduced by at

least image reduction, filtering, discrete cosine transformation, and motion vector

control. Okada provides for controlling the bitrate by at least specific region designation

and motion maps, where specific areas can be also determined by motion vectors and

also by block activity. Christian is used merely to provide for the conventionality of

counting the number of most significant bits. Dunn provides for altering the frame rate

based on specific regions of the image including regions that may have motion.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on
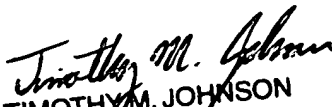
Statement of Reasons for Allowance".

Contact Information

15.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M Johnson whose telephone number is 703-306-3096. The examiner can normally be reached on Monday – Friday from 5:30 to 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta, can be reached on Monday – Friday from 9:30 to 5:00. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Timothy M. Johnson
Patent Examiner
Art Unit 2625
May 20, 2004

TIMOTHY M. JOHNSON
PRIMARY EXAMINER